

Claim 29 and 33 are amended to correct what will be readily recognized as typographical errors. Entry of these amendments is respectfully requested.

Claims 1-6, 10-16, 29 and 30 were rejected under 35 U.S.C. Section 102(b) as allegedly being "anticipated" by Emerson *et al.* (U.S. Patent No. 5,553,059). For the reasons set forth below, Applicant traverses this rejection.

Emerson *et al.* discloses a system for determining where errors have occurred in a transmission path. Specifically, the system determines whether there is an error in lines 16 or lines 18 of local loop 14. A loop back test is performed after network interface unit (NIU) 22 enters a loop back mode and the network based test system 32 transmits a serial stream of bits to the NIU 22 over lines 16. Each bit received by the unit 22 is returned via link 30, which is switched into the circuit by the NIU control circuit, and then transmitted over lines 18 back to the test system 32. There the bit sequence is compared to the sequence that was originally transmitted. To distinguish if the error occurred in the forward path from the test system 32 to the NIU 22 over lines 16 or over lines 18, a pattern generator circuit is activated. When the NIU 22 command detector circuit 34 detects a remote pattern generation command sequence on lines 16, the circuit 36 is invoked. The command contains information about which test pattern is to be generated by the unit 22. The requested test pattern is generated by the NIU 22 and transmitted over lines 18 to the test system 32. There the results are analyzed and determination is made if a transmission error occurred.

If transmission errors occur in the NIU loop back test and transmission errors also occur in the NIU pattern generation test, the transmission problem is located in the receive direction of local loop 14 on lines 18. If transmission errors occurred in the NIU loop back test and no error occurred in the NIU pattern generation test, then the transmission problem is located in the transmit direction of local loop 14 on lines 16.

Each of claims 1 and 10 calls for controlling switching means to connect predetermined circuitry across a communication line to enable a selected characteristic of the line to be measured. Claim 29 calls for controlling a switching circuit to selectively connect at least one measurement-related circuit across the communication line to enable a characteristic of the line to be measured. Emerson *et al.* does not disclose switching predetermined circuitry across a communication line at either end thereof to enable a selected characteristic of the line to be measured as set forth in claims 1, 10 and 29. With reference to the comments in the office action on the last feature of claim 1, there is no circuitry in Emerson *et al.* that is switched across the communication line on the basis of a signal representing a characteristic selected for measurement as required by these claims. A loop back detector circuit 56, upon receipt of a loop back command sequence, sends an activating signal to a first loop back control circuit 60 on connection 60A. Upon receipt of a remote pattern generation command, the loop back detector circuit 56 transmits a signal 62B to the pattern generator circuit 62. The signal 62B activates the pattern generation circuit 62 and instructs the circuit 62 on which pattern to generate. So it is simply receiving

commands on which pattern to generate so as to provide an indication to the test unit 32 in which direction errors are occurring. Emerson *et al.* uses test signals to detect errors and then determine in which direction of transmission the errors occur, but does not connect circuitry across a communications line to enable measurement of a selected characteristic of the line.

Anticipation under 35 U.S.C. Section 102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention. *Electro Med. Sys. S.A. v. Cooper Life Scis.*, 34 F.3d 1048, 1052, 32 USPQ.2d 1017, 1019 (Fed. Cir. 1994). Because Emerson *et al.* at least fails to disclose switching predetermined circuitry across a communication line to enable a selected characteristic of the line to be measured as set forth in claims 1, 10 and 29, Emerson *et al.* cannot anticipate the subject matter of these claims. Claims 2-6 depend from claim 1; claims 11-16 depend from claim 10; and claim 30 depends from claim 29. These claims are likewise not anticipated by Emerson *et al.*

Claims 7, 8, 17, 18, 19-28 and 31 were rejected under 35 U.S.C. Section 103(a) as allegedly being "obvious" over Emerson *et al.* in view of Barton *et al.* (U.S. Patent No. 5,343,461). Barton discloses a fully duplex digital transmission facility loop back test, diagnostics and maintenance system which is capable of initiating a loop back test and predetermined diagnostics for a particular digital transmission span and customer premises equipment at a location of a network interface for a particular end user. However, like Emerson *et al.*, there is no particular disclosure in Barton *et al.* of connecting predetermined circuitry across

the communications line to enable a selected characteristic of the communications line to be ascertained and measured as called for in the rejected claims. Thus, the combination of Barton with Emerson *et al.*, even if proper, would not have rendered the subject matter of claims 7, 8, 17, 18, 19-28 and 31 obvious.

Claims 9, 32 and 33 were rejected under 35 U.S.C. Section 103(a) as allegedly being "obvious" over Emerson *et al.* in view of Bass *et al.* (U.S. Patent No. 3,920,975). Bass *et al.* discloses a remote tester control system that provides switching between various modems, one being primary and other being a back up, connected to each remote station 12 and 26. Each modem 20 has an exact duplicate that can be switched to replace it should an operating problem develop therein. A network controller 34 applies command signals to the communications network to affect switching changes at remote data terminal stations 12 and 26. The command signals are applied to the network not only to reconfigure it for operating purposes by switching back over to back-up facilities, but also to place the different network elements into various test modes. Like Emerson *et al.*, there is no disclosure in Bass *et al.* of any predetermined circuitry that is connected across a communications line in order to enable characteristics of the line to be measured. Thus, the combination of Emerson *et al.* and Bass *et al.*, even if proper, would not have rendered the subject matter of claims 9, 32 and 33 obvious.

New claims 34-43 have been added for the Examiner's consideration. The subject matter of these new claims is fully supported by the original

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disclosure and no new matter is added. Claims 34-43 respectively depend from one of claims 1, 10, 19, 24 and 29 and are believed to be allowable because of these dependencies and because they describe subject matter that is not taught or suggested by the applied references.

Applicant submits that the pending claims are in condition for allowance, and action to that end is earnestly solicited.

If any issues remain to be resolved, the Examiner is urged to contact the attorney for Applicants at the telephone number listed below.

Respectfully submitted,

NIXON & VANDERHYE P.C.



Michael J. Shea
Registration No. 34,725

1100 North Glebe Road
8th Floor
Arlington, Virginia 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100

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Claims 29 and 33 have been amended as follows:

29. (Amended) Apparatus for remotely measuring characteristics of a communications line, comprising:

a receiver unit connected to one end of the communications line, said receiver unit including a signal generator for generating a signal uniquely representing a characteristic of the communications line to be measured and a signal transmitter for transmitting the generated signal; and

a sender unit connected to another end of the communication line, said sender unit including a signal detector that detects the signal transmitted from the receiver unit, measurement-related circuits, and a switching circuit controlled in accordance with the detected signal to selectively connect at least one of the measurement-related [measurement] circuits across the communications line to enable the characteristic of the communications line to be measured.

33. (Amended) Apparatus as claimed in claim 29, wherein the receiver unit further comprises:

measurement-related [measurement] circuits; and
a switching circuit for connecting at least one of the measurement-related [measurement] circuits across the communication line to enable the characteristic of the communications line to be measured.